

Company Sep 21, 2016

The electric motor enables opportunities

An interview with Uwe Michael, Head of Electrical and Electronics Development at Porsche AG, about chances and challenges through digitization and electrification.



Mr Michael, in terms of technologies and positioning, how is the traditional automotive industry responding to current and future megatrends such as digitization?

The automotive industry will intelligently tie together these megatrends and enable customers to experience them at the highest levels of safety and quality - that capacity has distinguished us throughout our history. As part of the migration of assistance systems to a higher degree of automation, elements such as sensor, object and map data will be fused together to enable convenient and energy-efficient driving and parking. After the implementation of personalized and vehicle-specific Car Connect services, the front is now shifting towards the use of comprised vehicle and personal data, in the form of swarm and cloud intelligence. This enables predictive functions that quickly come to seem indispensable to anyone who has tried them.

What role do battery and charging technologies play with respect to customer acceptance of new electrically powered vehicles?

The range and charging times of electric vehicles are two important factors in the effort to generate customer enthusiasm for electric vehicles. Alongside battery manufacturers, the aim is to create electric vehicles that are not simply equivalent to combustion engine vehicles, but actually superior to them.

The prospect of greater electric ranges is there, but costs and weight must still come down substantially. On the other hand, there seems to be a breakthrough in the offing with regard to the much-criticized long charging times through the switch to rapid charging with 800 volts instead of 400. There is a real need for greater engagement on the part of the government and the national electromobility platform in terms of infrastructure expansion.

What changes need to be enacted in terms of the processes and structures of automobile manufacturers in the context of the digital transformation? And what role is played in that by specialized development centers such as Porsche Engineering's software development office in Cluj-Napoca, Romania?

We need to modernize our ways of thinking and processes if we want to continue to set the tone. Success factors such as cross-industry partner models, short development cycles and tying together product and lifestyle worlds are guiding principles for our strategies. Having a location like our office in Cluj-Napoca, our new software location in Romania, will be helpful in that. There we can develop concepts and ideas in parallel with our core development processes in a dynamic environment and implement those ideas in

later series projects. This is one of many building blocks that we're working with in order to continue to delight our customers and stay ahead of the competition in the future.

Porsche will bring its fully electric Mission E to the market by the end of the decade. How is Porsche confronting the challenges in terms of development and customer acceptance that arise with such a new type of vehicle?

The Mission E is a new car, but we're not exactly starting from scratch with the topic of electromobility. Porsche invented the hybrid drive system and we were the first manufacturer to introduce hybrid drives in three different vehicle classes. And in 2015 we won the FIA WEC championship with the hybrid-powered Porsche 919. Just as in motor racing, with the Mission E we aim to exceed expectations and demonstrate how we envision the future of electric sports cars.

Thanks to the 800-volt charging technology in the Mission E, it is possible to achieve an 80% charge in less than 15 minutes. Fully charged, we can achieve ranges of 500 km. With 600 hp, the car accelerates from 0 to 100 km/h in less than 3.5 seconds. And it has a top speed of 250 km/h. The electric motor enables completely new concepts and opportunities not merely to satisfy customers, but to enthuse them. But the Mission E will not only usher in a new era in terms of electromobility; it will also set new standards for the coming decade with respect to the interior, the control concept, connected functions and the design language.

Uwe Michael

Uwe Michael (56) studied electrical engineering at the Darmstadt University of Technology, with a focus on solid-state electronics. After receiving his Dipl.-Ing. degree, he held a number of positions over 15 years at the automotive supply company VDO Automotive AG. He then headed a division at Mannesmann AG in charge of the sites in Wetzlar (DE), Eindhoven (NL), Rambouillet (FR), and Sophia Antipolis (FR). Uwe Michael joined Porsche in 2001 and has directed electrical and electronic development ever since.

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Text first published in Porsche Engineering Magazine, Issue 1/2016

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